A² CONSULTING ENGINEERS

Forensics ~ Failure Analysis ~ Energy

ANTHONY ANDREONI, PE, MBA, ASE

Owner & Consulting Engineer

Consulting Engineer with over 26 years of combined engineering and management experience providing litigation, regulatory support and expert testimony for law firms, insurance companies and industry. He performs and reviews technical and failure analysis investigations, assesses and evaluates best business practices and operations, and evaluates codes and standards.

Experience includes product failure analysis, mechanical and automotive engineering, forensics, collision investigations and reconstruction, crash event data recorder analysis, mechanical and electrical system analysis, automotive passive restraint assessment, air emissions mitigation, energy analysis, passenger vehicle and heavy-duty truck system analysis, vehicle fire causation (CVFI), as well as equipment assessment and cost evaluation.

He has specific expertise with automotive brake systems and various automotive and truck components, including mechanical and electronic equipment used in multiple industries. He has provided expert testimony on vehicle component and engine failures, regulating emissions, accident/collision investigation, and lemon law related matters, and has also consulted in the transportation industry. Additional knowledge and expertise in:

- Alternative vehicle propulsion systems
- Hydraulic systems
- Alternative energy
- Air quality & emissions
- Diesel and gas internal combustion engines
- Collision/Accident Reconstruction & Risk assessments
- Renewable energy
- Environmental control
- Water intrusion, and piping, plumbing and irrigation systems
- Refrigerants, and fire suppression systems

Mr. Andreoni is a former supervisor and engineer for the California Air Resources Board, and former Regulatory Director for the California Municipal Utilities Association, providing regulatory public comments, compliance assistance and testimony to California agencies. He is also a former automotive technician and a long-time member of SAE International.

PROFESSIONAL HIGHLIGHTS

Owner & Principal Engineer, *A² Consulting Engineers*, Rocklin, CA, 1997 to Present. Provide forensic and mechanical engineering services. Perform vehicle and large truck component failure analysis, engineering, collision investigation and reconstruction, and crash event data analysis for multiple insurance, legal and industry clients. Investigate and evaluate product defects, perform vehicle and equipment fire analysis, lemon-law vehicle assessments, evaluate advanced vehicle technology, best business practices, codes and standards, and assess vehicle emissions regulatory compliance and testing/analysis.

Education

Master of Business Administration, California State University, 2007

Bachelor of Science, Mechanical Engineering Technology with emphasis in CAD/CAM, California State University, 1991

Registered PE

Arizona, #62468
California, #29688
Idaho, #17160
Nevada, #024276
Oregon, #91408PE
Texas, #124095
Utah, #10124823-2202
Washington, #53673

Certification

- National Automotive Service Excellence (ASE)
- FAA Part 107 UAS Remote Pilot
- Crash Data Analyst
- CFEI & CVFI, National Association of Fire Investigators (NAFI)

Associations

- SAE International
- National Association of Professional Accident Reconstruction Specialists
- California Association of Accident Reconstruction Specialists
- Washington Association of Technical Accident Investigators
- NSPE
- AAFS

Contact

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PROFESSIONAL HIGHLIGHTS (CONTINUED)

Director, Forensic Operations & Sr. Mechanical Engineer, JENSEN HUGHES (formerly CASE Forensics), San Leandro & Rocklin, CA, 2017 to 2019. Performing vehicle and large truck component failure analysis, engineering, investigations, accident reconstruction and crash data analysis for multiple insurance and legal clients. Investigate and evaluate multiple types of product defects, water intrusion and piping/tubing failure analysis, vehicle fire cause analysis, renewable energy production assessments, advanced vehicle technology evaluation, lemon-law cases, California regulatory compliance and best business practices, equipment replacement cost analysis, and assess commercial and residential equipment losses.

Adjunct Professor, California State University, Sacramento, 2018-2019 & 2022. Strategic & Operations Management classes for the College of Business.

Senior Project Engineer, Envista Forensics (formerly PT&C|LWG Forensic Consulting Services), Northern CA, 2015 to 2017. Provided failure analysis for multiple insurance and legal clients covering various applications in automobiles, accident investigation/reconstruction, crash data analysis, transportation, and passenger vehicle and heavy-duty truck crash analysis, water supply and waste systems, commercial electronic equipment, renewable power assessments, and other industrial & power related equipment failures.

Director of Regulatory Affairs, California Municipal Utilities Association – CMUA, Sacramento, CA, 2010 to 2015. Tracked, identified and analyzed regulatory and policy efforts from key energy and water agencies while working closely with multiple association members, committees, and legal counsel on AB32, energy efficiency, renewable power, electric vehicle transportation infrastructure and delta water conveyance. Testified and provided written public comments to multiple California State agencies on behalf of municipal utility members.

Chief of the Research & Economics Studies Branch in the Research Division, California Air Resources Board, Sacramento, CA, 2007 – 2010. Managed branch operations, including regulatory and human resource development for the economics, the greenhouse gas reduction strategy and the agency technical & law library sections. Provided leadership on climate change studies, ozone depleting substances such as refrigerants, the renewable energy standard, and high Global Warming Potential source mitigation. Directed a small wind power study for the Cal-EPA building.

Manager of the Zero Emissions Vehicle (ZEV) Section, California Air Resources Board, Sacramento, CA, 2005 – 2007. Reviewed technology development for fuel-cell vehicles, battery electric vehicles, hydrogen internal combustion engine powered vehicles and hybrid-electric vehicles. Worked closely with auto and transportation industry representatives. Developed and implemented a $13M Alternative Fuel Incentive Program to increase alternative vehicle technology research and consumer use.

Manager in the Process Evaluation Section, California Air Resources Board, Sacramento, CA, 1999 – 2005. Managed multiple projects that focused on reducing air emissions from Transport Refrigeration Unit diesel engines, agricultural engines, automotive consumer products, metal melting facilities, and inorganic lead sources. Provided expert testimony to the Board and a Select Senate Committee regarding automotive brake systems, agricultural diesel pump engines and air pollution issues at solid waste landfills.

Lead Engineer, California Air Resources Board, Sacramento, CA, 1997 – 1999. Managed multiple mobile source emissions research projects, and Project Manager for the Innovative Clean Air Technologies (ICAT) program, funding $1M annually for new emission control technology development. A technical expert on emission control technologies for both mobile and stationary source applications.

Lead Engineer & Project Manager, California Air Resources Board, Sacramento, CA, 1992 – 1997. Managed multiple ambient air pollution monitoring special studies. Provided engineering and design expertise on the construction of two mobile air monitoring vehicles. Redesigned a collection system and a new metal piercing adapter used to collect propellants from metal aerosol containers following ASTM D 3074-94 and ARB Method 310. Designed, analyzed and evaluated HVAC requirements, insulation specifications, meteorology towers, and power requirements for stationary and mobile ambient air monitoring stations. Provided statistical analysis on air monitoring data.

Lead Technical Editor of CD-ROM, Alldata Corporation, Elk Grove, CA, 1991 – 1992. Published automotive diagnostic material. Provided direction to the General Motors (GM) data capture team, and assisted team members in researching and reviewing new automotive diagnostic and testing material.

Student Engineer, State of California, Bureau of Automotive Repair (BAR), Sacramento, CA, 1990 – 1991.
Researched pre-1984 automotive engine and emission control system specifications. Performed computer software testing and training on BAR-90 Smog Check analyzers. Provided design changes to the BAR test engine platform used for experimental emissions research.

CONTINUING EDUCATION AND TRAINING

- Vehicle Fire Investigation Training Program – NAFI (09/27-09/30, 2021)
- Accident Reconstruction Certificate Program – SAE International (06/2021)
- Advanced Applications of Heavy-Duty Vehicle EDR Data – SAE International (05/2021)
- Tire Forensics, NAPARS Training by T.J. Tennent & Associates (03/2021)
- Fundamentals of Vehicle Dynamics & Fundamentals of All-Wheel Drive Systems – SAE International (12/2020)
- Accident Reconstruction, The Autonomous Vehicle and ADAS – SAE International (11/2020)
- EDR use in Traffic Collision Reconstruction (11/2019)
- Conference on Electric Scooters, Pedestrians, Bicycles – CA²RS (10/2019)
- Accessing and Interpreting Heavy Vehicle Event Data Recorders – SAE International (10/2016)
- Accident Scene Investigation
- Advanced Strategies for Investigating HVAC Failures
- Air Brake Systems Training
- Automobile Technician Training
- Bendix ADB22X Introduction, Inspection, and Guide Pin Service Module
- Crain Claims: Damages, Repairs, Cause & Origin, and Special Cases
- Crash Data Retrieval (CDR) Summit
- CSST Fire Investigation Claims
- Determining Liability in Electrical Generation, Distribution, and Transmission Failures
- Electrostatic Discharge (ESD): The Silent Killer
- Energy Claims in the Global Market
- Equipment Failures Related to Wind Energy
- Food Processing Facility Losses
- General Procedures for Failure Analysis
- Introduction to NFPA 25
- Lithium Batteries and Subrogation
- Medical Equipment
- Most Difficult Questions for Experts
- Spoliation of Evidence
- Successful Product Liability Investigations
- The End of the World as We Know It: How Solar Storms Can Impact the Insurance Industry
- The Litigation Process
- Vehicle Accident Reconstruction

NOTABLE PUBLICATIONS AND PRESENTATIONS

Andreoni, A., “An Overview of Collision Reconstruction/Investigation using Crash Event Data,” CSUS Mechanical Engineering 145 Lecture, May 4, 2021.

Andreoni, A., “An Overview of Collision Reconstruction/Investigation using Crash Event Data… w/Case Studies & Toyota VCH/FFD Data,” California Association of Accident Reconstruction Specialists (CA²RS) Training, December 2, 2020.

Andreoni, A., “Advanced Technologies: Levels of Autonomous Vehicles & Collision Avoidance – Reconstruction,” 45th Public Agency Risk Management Association, Conference/Expo, Disneyland Hotel, Anaheim CA, February 12, 2019.

Andreoni, A., “Vehicle-to-Vehicle (V2V) Communications: Why this is Important to Autonomous Vehicles.” published in WP Magazine, Ontario Insurance Adjusters Association, November 2018.

Andreoni, A., “Autonomous Vehicle Safety & Accident Reconstruction” – Stanislaus County Safety Council (SCSC), Modesto California, October 16, 2018.

Andreoni, A, Lee, Felix, “Products, Appliances, Vehicles and Systems – Failure Analysis with Case Studies,” Combined Claims Conference (CCC), Orange County, California, March 7, 2018.

Andreoni, A., “Advanced Accident Reconstruction – Airbag Module Analysis and Demonstration,” OneBeacon Insurance, Englewood, CO, June 2017.

Andreoni, A., “Update on California State Regulatory Activities on Energy & Water sectors,” Annual CMUA Conferences, 2010-2015.

Andreoni, A., “Market Evaluation of Plug-in Hybrid Electric Vehicles,” Master’s Degree Thesis. California State University, Sacramento, California, 2007

Andreoni, A., “An Update on the California Zero Emission Vehicle Regulation,” The 7th International Advanced Automotive Battery & Ultracapacitor Conference, Long Beach, California, May 2007

Andreoni, A., “An Air Resources Board Overview of California’s Alternative Fuel Incentive Program (AFIP),” Alternative Fuels & Vehicles National Conference & Expo 2007, Anaheim, California, April 2007

Mayer, A.C.R., Andreoni, A., Kany, S., Noethiger P., Richards P., Andreassen L., and Sem, T.R., “Retrofitting TRU-Diesel Engines with DPF-Systems Using FBC and Intake Throttling for Active Regeneration”, SAE Paper 2005-01-0662, SAE 2005 World Congress and Exhibition, Detroit, Michigan, 2005

Andreoni, A., Ayala, A., “Diesel Emission Control Technology Developments in California,” U.S. Department of Energy 11th Annual Diesel Engine Emission Reduction Conference, Chicago, Illinois, August 2005

Andreoni, A., “Report to the Board on an Emergency Regulation: Availability of Stationary Engines (less than 175 hp) Meeting the 0.15 g/bhp-hr. Particulate Matter (PM) Standard,” Sacramento, CA, March 2005

Andreoni, A., “Reduction of Particulate Matter and Other Emissions from Transport Refrigeration Units,” EPRI Regional Conference, Sacramento, CA, September 2003.

Andreoni, A., “Public Hearing to Consider the Proposed Control Measure for Chlorinated Toxic Air Contaminants from Automotive Maintenance and Repair Activities,” San Diego, CA, September 2003

White, J.J., Andreoni, A., Carroll, J.N., “Three-Way Catalyst Technology for Off-Road Equipment Engines”, SAE Paper 1999SETC-87, 1999

Andreoni, A., Bloudoff, D., Shahinian, G., “Fresno Special Purpose Monitoring Report: Parallel and Saturation Studies for Carbon Monoxide,” ARB Report, June 1994